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EXAMINER	
OCHOA, JUAN CARLOS	
ART UNIT	PAPER NUMBER
2123	

NOTIFICATION DATE	DELIVERY MODE
02/19/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/826,630	PINTO ET AL.	
	Examiner	Art Unit	
	JUAN C. OCHOA	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 December 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,13-19,22,23 and 25-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1–11, 13–19, 22, 23, and 25–40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/23/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 12/23/2009 has been received and considered. Claims 1–11, 13–19, 22, 23, and 25–40 are presented for examination.

Inventorship

2. In view of the papers filed 07/07/2009, it has been found that this nonprovisional application, as filed, through error and without deceptive intent, improperly set forth the inventorship, and accordingly, this application has been corrected in compliance with 37 CFR 1.48(a). The inventorship of this application has been changed by addition of Jay C. Hirshberg.

3. The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of Office records to reflect the inventorship as corrected.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 3–5, 11, 13, 16, 26–28, 30, 31, 33, 34, and 36–40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bounsaythip et al., (Bounsaythip hereinafter), Overview of Data Mining for Customer Behavior Modeling, (see IDS dated 10/20/08), taken in view of Bloom et al., (Bloom hereinafter), U.S. Pre–Grant publication 20030212678.

8. As to claim 1, Bounsaythip discloses a machine-based method comprising: in connection with a project in which a predictive model is generated based on historical data about a system being modeled (see page 8, # 2.4.1), selecting variables having at least a first predetermined level of significance from a pool of potential predictor variables associated with the historical data, to form a first population of predictor variables (see page 6, # 2.3.3), extending the first population of predictor variables (see page 93, 2nd paragraph), selecting variables having at least a second predetermined

level of significance from the extended first population of predictor variables to form a second population of predictor variables (see page 6, # 2.3.3, last paragraph), extending the second population of predictor variables (see page 6, # 2.3.3, next to last paragraph), selecting variables having at least a third predetermined level of significance from the extended second population of predictor variables to form a third population of predictor variables (see page 6, # 2.3.3, last paragraph), generating a possible model of the third population of predictor variables using a subsample of the historical data by the model generation method (see page 9, # 2.4.3), determining whether the possible model generalizes to the historical data other than the subsample (see page 33, last two paragraphs), applying the possible model to all of the historical data to generate a final model, cross-validating the final model using random portions of the historical data, and interacting with the system being modeled based on the final model (see page 9, # 2.4.4; page 27–32, # 3.7).

9. While Bounsaythip discloses "New fields can be generated through combinations, e.g. frequencies, cross-tabulations, averages and minimum/maximum values, relationships between different profiling variables etc…" (see page 6, # 2.3.3, next to last paragraph); Bounsaythip fails to expressly disclose cross products of at least two variables, each being from the first population of predictor variables, cross products of at least two variables, at least one of the variables being from the pool of predictor variables and having less than the first predetermined level of significance, and automatically selecting a model generation method from a set of available model generation methods to match characteristics of the historical data.

10. Such features are however well–known in the art. For example, Bloom discloses to include cross products of at least two variables, each being from the first population of predictor variables and to include cross products of at least two variables, at least one of the variables being from the pool of predictor variables and having less than the first predetermined level of significance (see paragraphs [0133–9]) and automatically selecting a model generation method from a set of available model generation methods to match characteristics of the historical data (see paragraphs [0003,0007]).

11. Bounsaythip and Bloom are analogous art because they are related to data mining.

12. Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to utilize the cross products of Bloom in the method of Bounsaythip because Bloom's "Model Seeker" automatically generates data mining models of adequate or even optimum quality in a way that reduces the need for user interaction and reduces the cost and improves the quality of model building, allowing the user or application to conveniently specify parameters for an execution that will asynchronously build multiple data mining models, such as classification models, optionally using multiple algorithms, by systematically varying the algorithm parameters, and then will evaluate and select a best model. Extension features also are intended to present the user/application with settings and results information about each model built and evaluated by a Model Seeker execution so that the user/application can independently find the parameters that correspond to an alternative best model using a different criterion (see paragraph [0006]).

13. As to claim 3, Bounsaythip discloses a method also including enabling a user to point and click to reduce or extend the size of the pool of potential predictor variables, retaining only predictor variables having at least the second predetermined level of significance (see page 25–27).

14. As to claim 4, Bounsaythip discloses a method in which a user is enabled to invoke an automatic process to select a class of models most suitable to the pool of potential predictor variables associated with the historical data (see page 27–31, # 3.7).

15. As to claim 5, Bounsaythip discloses a method in which a user is enabled to point and click to adjust a criterion of the model selection to retain only the variables having at least a certain level of significance for a target goal (see page 25–27, # 3.6.3).

16. As to claim 11, Bounsaythip discloses a method in which a user is enabled to choose interactively at least one performance criterion change or transformation or interaction of variables to improve a fit of the possible model or the final model (see page 25–27, # 3.6.3).

17. As to claim 13, Bounsaythip discloses a method in which a user is enabled to select at least one validation dataset and invoke a model process validation method (see page 25–27, # 3.6.3).

18. As to claim 16, Bounsaythip discloses a method in which a user is enabled to select at least one machine automated model development process applied to the entire set of historical data for a validated model process (see page 33, last two paragraphs).

19. As to claim 26, Bounsaythip discloses a method also enabling a user to select a means of validating the selected model generation method (see page 33, last paragraph).

20. As to claim 27, Bounsaythip discloses a method also enabling a user to observe the performance of the possible model or the final model when applied to a training subset and a validation subset of the historical data (see page 46–47, # 6.2).

21. As to claim 28, Bounsaythip discloses a method also enabling a user to invoke at least one validated model generation method to produce a final model and enabling the use to observe the performance of the final model on at least two independent subsets, the independent subsets being randomly selected from the historical data (see page 33, last two paragraphs).

22. As to claim 30, Bounsaythip discloses a method enabling the final model to be applied to scoring at least one non-historical dataset wherein a propensity computed by the model is indexed by the score (see page 34, # 4).

23. As to claim 31, Bounsaythip discloses a machine-based method comprising in connection with a project, generating a predictive model based on the historical data (see page 7, # 2.4), and displaying to a user a lift chart, monotonicity, and concordance scores associated with each step in a step-wise model fitting process (see page 40–42, # 7; page 47). Bloom discloses automatically selecting a model generation method from a set of available model generation methods to match characteristics of the historical data about a system being modeled (see paragraphs [0003,0007]).

24. As to claim 33, Bounsaythip discloses a method also including enabling the user to terminate the fitting process when the fitting process reaches an optimal point (see page 33, last two paragraphs).

25. As to claim 34, Bounsaythip discloses a machine-based method comprising receiving from separate sources, sets of potential predictor variables representing historical data and dependent variables representing response propensities about a system being modeled (see page 6, # 2.3.2, 2.3.3; page 7, # 2.4), and combine at least two models based on response propensities of each model in order to create cross-modal deciles and based on data weaving of the historical data to provide cross-modal optimization, the combining including concatenating the predictions of the two models (see page 7, # 2.4; page 39, # 4.6). Bloom discloses enabling a user of a model generation tool to combine at least two models (see paragraphs [0006, 0133–9], especially paragraphs [0137,8])

26. As to claim 36, Bounsaythip discloses a method in which the system being modeled comprises behavior of prospective or current customers with respect to products or services of a company and the method also includes adjusting outcome variables to normalize response rates across products or services with different response rates (see page 39, # 4.6).

27. As to claim 37, Bounsaythip discloses a method in which the system being modeled comprises behavior of current customers with respect to retention of a current service or product of a vendor and the method also includes adjusting variables to normalize response rates across products or services with different response rates,

using the computed propensities as indices of the scores (see page 4, # 2.2, 1st paragraph).

28. As to claim 38, Bounsaythip discloses a method also comprising determining a course of action to yield the most positive net present value outcome (see page 4, # 2.2, 1st paragraph).

29. As to claim 39, Bounsaythip discloses a method in which the determining includes selection of a mix of channel (see page 30, last paragraph) and product combinations (see page 4, # 2.2, 1st paragraph).

30. As to claim 40, Bounsaythip discloses a method in which the determining includes predicting retention in combination with response rate to predict net present value (see page 4, # 2.2, 1st paragraph).

31. Claims 2, 6–10, 14, 15, 17, 18, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bounsaythip taken in view of Bloom as applied to claims 1 and 31 above, and further in view of Karen Papierniak, (Papierniak hereinafter), Pre–Grant publication 20030154442.

32. As to claim 2, while the Bounsaythip–Bloom method generates a predictive model based on historical data about a system being modeled, the Bounsaythip–Bloom method fails to disclose displaying information to a user of the size of the pool of potential predictor variables.

33. Papierniak discloses a method also including displaying information to a user of the size of the pool of potential predictor variables (see Fig. 4).

34. Bounsaythip, Bloom, and Papierniak are analogous art because they are related to predictive modelling.

35. Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to utilize the displaying of Papierniak in the Bounsaythip–Bloom method because Papierniak provides a web site visualization tool for web analytics (see paragraph [0006]), and as a result, Papierniak reports enabling a user/analyst desiring insight into the business aspect of a web site to easily peruse a web site, via a browseable web page, and view metrics related to each of the web pages in a context similar to users of the web site (see page 235, col. 2, next to last paragraph [0057]).

36. As to claim 6, Papierniak discloses a method in which a user is enabled to point and click to cause display of information about performance of the possible model or the final model (see Fig. 6, 7).

37. As to claim 7, Bounsaythip discloses a method in which the information includes at least one of: a statistical report card, a link to a statistical report chart, a lift chart, a link to the lift chart (see page 47), a response comparison chart for each decile for each predictor variable in the possible model or the final model, or a link to the response comparison chart.

38. As to claim 8, Papierniak discloses a method in which invocation of the link to the statistical report card causes display of the statistics of the performance of the possible model or the final model (see Fig. 6, 7).

39. As to claim 9, Bounsaythip discloses a method in which invocation of the link to the lift chart causes display of a non-cumulative lift chart (see page 47).

40. As to claim 10, Papierniak discloses a method in which invocation of the link to the response comparison chart causes display of a response chart for each predictor variable in the possible model or the final model for each segment of interest (see Fig. 6, 7).

41. As to claim 14, Papierniak discloses a method in which the user is enabled to point and click to cause display of information about the model process validation (see Fig. 6, 7).

42. As to claim 15, Bounsaythip discloses a method in which the information about the model process validation includes at least one of: a statistical report card, a link to a statistical report chart, a cumulative lift chart, a link to the cumulative lift chart and a non-cumulative lift chart, a link to the non-cumulative lift chart (see page 47).

43. As to claim 17, Papierniak discloses a method in which the user is enabled to point and click to cause display of information about the performance of the validated model process applied to the entire set of historical data (see Fig. 6, 7).

44. As to claim 18, Papierniak discloses a method in which the information about the performance comprises information about the performance of the validated model process applied to two independent data subsets, the independent data subsets being randomly selected from the historical data, includes at least one of: a statistical report card, a link to a statistical report chart, a cumulative lift chart, a link to the cumulative lift chart and a non-cumulative lift chart, a link to the non-cumulative lift chart (see Fig. 4).

45. As to claim 32, Papierniak discloses a method also including enabling the user to observe changes in the fit as variables associated with the historical data are added or removed from a predictor set of the variables (see Fig. 6, 7).

46. Claims 23, 25, 29, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bounsaythip taken in view of Bloom as applied to claims 1 and 34 above, and further in view of Heller et al., (Heller hereinafter), U.S. Patent 7,349,827.

47. As to claim 23, while the Bounsaythip–Bloom method generates a predictive model based on historical data about a system being modeled, the Bounsaythip–Bloom method fails to disclose enabling a user to observe the number of predictor variables available for generating the predictive model.

48. Heller discloses a method also including enabling a user to observe the number of predictor variables available for generating the predictive model (see col. 2, lines 35–40).

49. Bounsaythip, Bloom, and Heller are analogous art because they are related to predictive modelling.

50. Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to utilize the enablement of a user to observe of Heller in the Bounsaythip–Bloom method because Heller analyzes online customer activity at a website in a cost-effective and efficient manner via efficient data collection, processing, attribution and report presentation processes, which enable client websites to quickly access and understand the interaction between site traffic and transactions, and those factors that drive each transaction (see col. 2, lines 28–34), and as a result, Heller

reports that as a modification and variation of his invention, with a number of clients with similar application of the system (e.g., selling furniture online, newspaper publishing website, etc.), reports can be provided to compare one client's metrics against an anonymous pool of other clients to determine its relative standing in the industry on several metrics (see col. 14, lines 57–62).

51. As to claim 25, Heller discloses a method also including enabling the user to observe the performance of the possible model or the final model by means of links to a plurality of statistical and graphical reports (see col. 2, lines 35–40).

52. As to claim 29, Heller discloses a method enabling the persisting of the final model and intermediate results to a project database (see col. 4, lines 7–13).

53. As to claim 35, Heller discloses a method in which enabling the user to combine the models includes providing a user interface that enables the user to identify variables to be combined (see Fig. 9; col. 14, lines 33–34).

54. Claims 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bounsaythip taken in view of Bloom further in view of Papierniak as applied to claim 18 above, and further in view of Heller.

55. As to claim 19, while the Bounsaythip–Bloom–Papierniak method generates a predictive model based on historical data about a system being modeled, the Bounsaythip–Bloom–Papierniak method fails to disclose displaying information to a user of the size of the pool of potential predictor variables.

56. Heller discloses a method in which the invocation of the link to the statistical report card causes display of the statistics of model process validation (see col. 2, lines 35–40).

57. Bounsaythip, Bloom, Papierniak, and Heller are analogous art because they are related to predictive modelling.

58. Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to utilize the displaying of Heller in the Bounsaythip–Bloom–Papierniak method because Heller analyzes online customer activity at a website in a cost-effective and efficient manner via efficient data collection, processing, attribution and report presentation processes, which enable client websites to quickly access and understand the interaction between site traffic and transactions, and those factors that drive each transaction (see col. 2, lines 28–34), and as a result, Heller reports that as a modification and variation of his invention, with a number of clients with similar application of the system (e.g., selling furniture online, newspaper publishing website, etc.), reports can be provided to compare one client's metrics against an anonymous pool of other clients to determine its relative standing in the industry on several metrics (see col. 14, lines 57–62).

59. As to claim 22, Heller discloses a method in which the final model and the model process validation results are stored persistently (see col. 4, lines 7–13).

Response to Arguments

60. Applicant's arguments have been fully considered, and they are persuasive.

61. Regarding the rejections under 112, the amendment corrected all deficiencies and the objections are withdrawn.

62. Regarding the rejection under 103, Applicant's arguments have been considered.

63. As to claim Applicant's arguments about cross products of at least two variables, automatically selecting a model generation method from a set of available model generation methods to match characteristics of the historical data, and enabling a user of a model generation tool to combine at least two models (see pages 9–11); Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. This subject matter was well known at the time of invention. See instant rejection.

Conclusion

64. Examiner would like to point out that any reference to specific figures, columns and lines should not be considered limiting in any way, the entire reference is considered to provide disclosure relating to the claimed invention.

65. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan C. Ochoa whose telephone number is (571) 272-2625. The examiner can normally be reached on 7:30AM - 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

66. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/J. C. O./ 2/18/2010
Examiner, Art Unit 2123

/Paul L Rodriguez/

Supervisory Patent Examiner, Art Unit 2123